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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/613,749	07/11/2000	Satoshi Suzuki	400762/AOYAMA	1153

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EXAMINER

RAO, SHRINIVAS H

ART UNIT PAPER NUMBER

2814

DATE MAILED: 10/04/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary

Application No.

09/613,749

Applicant(s)

SUZUKI ET AL. 

Examiner

Steven H. Rao

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2814

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 August 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 18-25 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☐ Claim(s) 18-25 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on _____ is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

DETAILED ACTION

Priority

Receipt is acknowledged of paper submitted under 35 U.S.C. 120, which papers Claiming priority from U.S. Serial No. 09/613,749 filed July 11, 2000 which itself claims priority from Japanese Patent Application No. 11-201609 filed July 15, 1999 have been placed of record in the file.

Continued Prosecution Application

The request filed on 08/01/2002 for a Request for Continued Examination Application (RCE) under 37 CFR 1.114 based on parent Application No. 09/613749 is acceptable and a RCE has been established. An action on the RCE follows.

Preliminary Amendment Status

Acknowledgment is made of entry of preliminary amendment filed 08 /01 /02.

Therefore claims 18 –25 as recited in the preliminary amendment are currently pending in the application. Claims 1-9 and 11-13 have been cancelled by the preliminary amendment.

Drawings

The drawings filed on July 11, 2000 have been accepted by the drafts person.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 18-25 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claim 18 recites , “ an anisotropic compound” the anisotropic compound was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claims 19-25 are rejected at least for depending upon rejected claim 18.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 18 –25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tsutsui (U.S. Patent No. 5,295,901 herein after Tsutsui) and Taguchi (U.S. Patent No. 5,001,108 herein after Taguchi) and Tozawa (Japanese Patent Publication No. 43270024, herein after Tozawa). , and Kobayashi (Japanese Patent Publication No. 61-232682 herein after Kobayashi)

With respect to claim 18, a semiconductor device including, (Tsutsui abstract line 4) .

An anisotropic compound (assuming arguendo that “ anisotropic “ is somehow not new matter) semiconductor substrate .

Tsutsui does not specifically describe an anisotropic compound semiconductor substrate .

However, Taguchi , a patent from the same field of endeavor, describes its abstract line 9 etc. describes an anisotropic compound semiconductor substrate to reduce the electrical resistance of the wiring to almost zero and thus allow signals to reach its destination without delay or degradation of the signal.

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to include Taguchi's anisotropic compound semiconductor substrate in Tsutsui's device to reduce the electrical resistance of the wiring to almost zero and thus allow signals to reach its destination without delay or degradation of the signal.

Having a first surface and a second surface, the compound semiconductor substrate being electrically isotropic in two mutually orthogonal directions (Taguchi col. 2 lines 10-12) , first second and third active regions on the first surface of the substrate (Tsutsui fig. 1), the first and second active regions being separated by a first insulating region (Tsutsui col. 4 lines 30-34) and the second and third active regions being separated by a second insulating region. (Tsutsui fig. 1) , a first semiconductor element including first ,second and third channel regions serially connected .

Adjacent channel regions having width directions essentially perpendicular to each other.

Tsutsui and Taguchi do not specifically describe or teach adjacent channel regions having width directions essentially perpendicular to each other.

However, Tozawa or Kobayashi (English Abstract) , each a patent from the same field of endeavor, describes in its figures adjacent channel regions having width directions essentially perpendicular to each other to improve integration and reduce the size of the devices.

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to include Tozawa's and/or Kobayshi's adjacent channel regions having width directions essentially perpendicular to each other to improve integration and reduce the size of the devices.

(Tozawa figures and /or Kobayashi's English Abstract), a first source electrode and a first drain electrode, adjacent to the first, second and third channel regions and opposing each other with the first, second and third channel regions there between and in ohmic contact with the first, second and third channel. (Tozawa figures), a first gate electrode disposed on the first, second and third active regions and along the first source electrode and the first drain electrode, and bent at first and second bending positions (Tozawa figs. 1 # 1,2 or 3 on the channels and along source electrode 3 and drain electrode 1), a second semiconductor element on the first, second and third active region adjacent to the first semiconductor element (Tozawa fig. 1 LHS (left hand side) element of 1A), fourth , fifth and sixth channel regions serially connected , adjacent

channel regions having width directions essentially perpendicular to each other , the fourth, fifth and sixth channel regions being adjacent to first, second and third channel regions, respectively with one of the first source electrode and the first drain electrode there between (Tozowa fig. 1A), a second source electrode and a second drain electrode in ohmic contact with the first, second and third active regions one of the second source electrode and the second drain electrode and opposing the first drain electrode and opposing the first drain electrode or the first source electrode across the fourth , fifth and sixth channel regions (Tozowa fig. 1 A) and a second gate electrode on the fourth, fifth and sixth channel regions and along one of the second source electrode and a second source electrode, and bent at third and fourth bending positions, wherein the first and second insulating regions are under the first and third bending portions of the first and second gate electrodes and under the second and fourth bending positions of the first and second gate electrodes respectively. (Tozawa fig. 1A, electrodes 1 and 3 and regions between the electrodes that is insulating regions).

With respect to claim 19, wherein the first source electrode is connected to a conductive film on the second surface of the semiconductor substrate through a via-hole in the first source electrode (Tozawa fig. 1a # 3 connected to bottom portion (eg. 2a) through via hole and interconnection part # A in fig. 1b).

With respect to claim 20, wherein the first bending position of the first gate electrode and the third bending position of the second gate electrode lie on a straight line substantially parallel to a longer side of the first, second and third active regions. (Tsutsui fig. 7 and Tozawa fig. 1a).

With respect to claim 21, wherein the first gate electrode is bent in opposite directions at the first and second bending positions and wherein the second gate electrode extends substantially at a uniform spacing from the first gate electrode. (Tsutsui fig. 7 and Tozawa fig. 1a).

With respect to claim 22, wherein the first gate electrode and second gate electrode share one of the first source and drain electrode (previous i.e. cancelled claim 11, Tozawa fig. 1a).

With respect to claim 23, wherein the first gate electrode is bent at right angles at each of the first and second bending positions. (previous i.e. cancelled claim 12, Tozawa fig. 1a).

With respect to claim 24 wherein the second gate electrode is bent at right angles at each of the third and fourth bending positions. (previous i.e. cancelled claim 12, Tozawa fig. 1a).

With respect to claim 25 wherein an angle between the width direction of the first gate electrode and a longer side of the first, second and third active regions is essentially 45° . (previous i.e. cancelled claim 13, Tozawa fig. 1a).

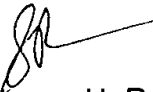
Applicants' argument that the previous application Of Tsutsui was in correct, is not persuasive for reasons previously set out and incorporated here by reference and further is moot as all previously pending claims have been cancelled.

Any inquiry concerning this communication or earlier communication from the examiner should be directed to Steven H. Rao whose telephone number is (703) 306-

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5945. The examiner can normally be reached on Monday- Friday from approximately 7:00 a.m. to 5:30 p.m.

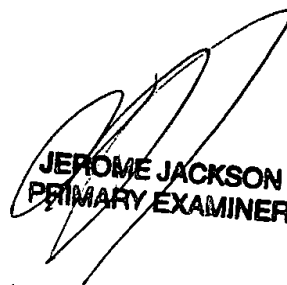
Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 308-0956. The Group facsimile number is (703) 308-7722.



Steven H. Rao

Patent Examiner

September 29, 2002.



**JEROME JACKSON
PRIMARY EXAMINER**